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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/019,261	KINOSHITA, TAKUMI	
	<b>Examiner</b>	<b>Art Unit</b>	
	Hung Q. Dang	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 14 December 2006.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-18 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-18 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>05/01/2002, 03/22/2004</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Response to Arguments***

Applicant's arguments filed 12/14/2006 have been fully considered. But they are not persuasive.

On pages 11-13, Applicant argues, Inokuchi et al. do not temporarily hold the digital data in the device before it records the digital data onto the disk, and do not detect that is possible to record the recording management information onto the disk while the digital data temporarily held in a data storage unit are recorded onto the disk. Therefore, Inokuchi et al. do not disclose or suggest the following features (1)-(3) of claims 1 and 10: (1) a data holding means (unit) for temporarily holding the digital data; (2) an image/voice data management means (unit) for monitoring whether or not there is room for recording digital data by the data recording and reproduction means while the data recording and reproduction means takes out the held digital data from the data holding means and records the digital data onto the disk-shaped recording medium, and (3) a recording management information management means (unit) for temporarily holding recording management information and outputting the recording management information to the data recording and reproduction means (unit) to be recorded on the disk-shaped recording medium when the image/voice data management means detects that there is room for recording of the digital data by the data recording and reproducing means (unit). Applicant also argues Tomizawa et al. also do not disclose or suggest features (1) and (3) of claims 1 and 10. Therefore, no obvious combination of Inokuchi

Art Unit: 2621

and Tomizawa would result in the invention of claims 1 and 10. Thus, claims 1 and 10 are clearly patentable over Inokuchi and Tomizawa.

In response, Examiner respectfully disagrees. Regarding limitation (1) above, Inokuchi et al. disclose a computer system (Fig. 1), which includes an internal random access memory ("RAM 7" in Fig. 1). It is inherent that a computer system uses its internal memory to store data for all types of processing. Thus, before recorded onto the disk, the digital data must be stored in the internal random access memory of the system shown in Fig. 1 of Inokuchi et al. Thus, Inokuchi et al. fully disclose a data holding means for temporarily holding the digital data. Regarding limitation (2) above, as acknowledged by Applicant (page 12), Inokuchi et al. disclose whether the recordable residual capacity of a disk is larger than the sum of the amount of digital data to be written, detects the amount of recording management information to be written, etc. In other words, Inokuchi et al. disclose monitoring whether or not there is room for recording digital data. Then, the image processor of Inokuchi starts recording the digital data when it is detected that the recordable residual capacity is larger than the calculated sum of the amount of digital data to be written. However, this does not mean Inokuchi et al. do not monitor whether or not there is room for recording digital data by the data recording and reproduction means while the data recording and reproduction means takes out the held digital data from the data holding means and records the digital data onto the disk-shaped recording medium. As indicated by Inokuchi et al., the monitoring of room on disk and taking out data occur alternately during a time period of certain duration (column 21, lines 4-7). Besides, this phenomenon also occurs

Art Unit: 2621

inherently in any computer systems. Thus, Inokuchi et al. fully disclose the limitation (2) above. For example, during a time period of one day, if both actions of monitoring and taking out data occur alternately, it is safe to say that monitoring is performed while taking out data is performed. Thus, Inokuchi et al. fully disclose the limitation (2) above. Regarding limitation (3) above, Inokuchi et al. disclose a recording management information management means for temporarily holding recording management information (column 1, lines 52-58) and outputting the recording management information to said data recording and reproduction means to be recorded on the disk-shaped recording medium when said digital data management means detects that there is a room for recording of the digital data by said data recording and reproduction means (column 7, lines 60-64; column 21, lines 4-7).

As demonstrated above, Inokuchi et al. clearly disclose the following limitations: (1) a data holding means (unit) for temporarily holding the digital data; (2) an image/voice data management means (unit) for monitoring whether or not there is room for recording digital data by the data recording and reproduction means while the data recording and reproduction means takes out the held digital data from the data holding means and records the digital data onto the disk-shaped recording medium, and (3) a recording management information management means (unit) for temporarily holding recording management information and outputting the recording management information to the data recording and reproduction means (unit) to be recorded on the disk-shaped recording medium when the image/voice data management means detects

that there is room for recording of the digital data by the data recording and reproducing means (unit).

On page 14, Applicant argues that no obvious combination of Dieleman, Inokuchi and Tomizawa would result in the inventions of claims 1 and 10 since Dieleman, Inokuchi and Tomizawa, either individually or in combination, clearly fail to disclose or suggest features (1)-(3) of claims 1 and 10.

In response, Examiner respectfully disagrees. As demonstrated above, Inokuchi et al. clearly disclose the limitations (1), (2), and (3) as discussed. Furthermore, Dieleman et al. also disclose limitation (1) above (column 13, lines 1-9; "buffer RAM 227" in Fig. 2). For that reason, it is safe to say that the combination of Dieleman et al. and Inokuchi et al. clearly discloses all the limitations of the claims 1-3, 7, and 9.

On page 14, Applicant argues that no obvious combination of Ohmori, Dieleman, Inokuchi and Tomizawa would result in the inventions of claims 1 and 10 since Ohmori, Dieleman, Inokuchi and Tomizawa, either individually or in combination fail to disclose or suggest features (1)-(3) of claims 1 and 10.

Again, in response, Examiner respectfully disagrees. As demonstrated above, Inokuchi et al. clearly disclose the limitations (1), (2), and (3) as discussed while Dieleman et al. also disclose limitation (1) as discussed. Furthermore, Ohmori also disclose limitation (1) (data holding means for temporarily holding the digital data (column 8, lines 22-27). For that reason, it is safe to say that the combination of Ohmori et al. and Inokuchi et al. clearly discloses all the limitations of the claims 1-2, 5-6, and 9.

And similarly, as demonstrated above, it is safe to say that the combinations of Inokuchi et al. with Dieleman et al., Ohmori, and Ginter et al., Tomizawa et al., Agha et al., and Braxton clearly disclose the claimed invention as rejected in the First Office Action and further in reference with the discussion of Inokuchi et al., Dieleman et al., and Ohmori et al. above, which is fully incorporated into this Office Action together with the rejections of newly added claims – see detailed action below.

#### **DETAILED ACTION**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1, 2, 7, 9-11, 16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inokuchi et al. (US Patent 5,978,812) and Tomizawa et al. (US Patent 5,976,658).**

Claims 1, 2, 7, and 9 recite a recording and reproduction disk control unit (or a disk device having a recording and reproduction disk control unit) which controls recording and reproduction of digital data onto/from a disk-shaped recording medium, which has a data recordable area where digital data composed of either one of both of image data and voice data are recorded and one, two or more management information areas where recording management information employed for management of the digital data is recorded, comprising: (1) a data recording and reproduction means for

recording digital data and recording management information onto the disk-shaped recording medium and reading the digital data and the recording management information from the recording medium; (2) a data holding means for temporarily holding the digital data; (3) an image/voice data management means for monitoring whether or not there is room for recording digital data by said data recording and reproduction means while said data recording and reproduction means takes out the held digital data from said data holding means and records the digital data onto the disk-shaped recording medium; (4) a recording management information management means for temporarily holding recording management information and outputting the recording management information to the data recording and reproduction means when the image/voice data management means detects that there is a room for recording of the digital data by the data recording and reproduction means, wherein: (5) the data recording and reproduction means records recording management information in the two or more management information areas in turn, (6) backup information concerning recording of the recording management information is included in the recording management information recorded on the disk-shaped recording medium (7) the recording management information temporarily held by the recording management information management means includes the backup information; (8) the recording management information means updates the backup information to the recording management information temporarily held by the recording management information management means to output to the data recording and reproduction means.

Inokuchi et al. teach an information processor (or a disk device having such an information processor) which uses a method of information processing that enables a CD-R to be used as a rewritable recording medium (abstract, column 4, lines 6-15), comprising: recording and reproduction of digital data onto/from a disk-shaped recording medium (column 4, lines 6-15), which has a data recordable area where digital data are recorded (column 2, lines 27-31) and one, two or more management information areas where recording management information employed for management of the digital data is recorded (column 2, lines 42-59; column 13, lines 44-48), comprising: (1) a data recording and reproduction means for recording digital data and recording management information onto the disk-shaped recording medium and reading the digital data and the recording management information from the recording medium ("CD-R drive device" in Fig. 1; column 4, lines 15-16); (2) a data holding means for temporarily holding the digital data ("RAM 7" in Fig. 1); (3) an data management means (CPU 6, RAM 7, and CD-R DRIVE 5 in Fig. 1) for monitoring whether or not there is room for recording digital data (column 19, lines 21-22, 39-45; column 20, lines 50-55, 64-67; column 21, lines 1-2, 6-11, 15-17) by said data recording and reproduction means while said data recording and reproduction means takes out the held digital data from said data holding means and records the digital data onto the disk-shaped recording medium (column 21, lines 4-7); (4) a recording management information management means (CPU 6, RAM 7, and CD-R DRIVE 5 in Fig. 1) for temporarily holding recording management information (column 1, lines 52-58) and outputting the recording management information to said data recording and reproduction means to be

recorded on the disk-shaped recording medium when said digital data management means detects that there is a room for recording of the digital data by said data recording and reproduction means (column 7, lines 60-64; column 21, lines 4-7), wherein: (4) the data recording and reproduction means records recording management information in the two or more management information areas in turn (column 1, lines 59-67; column 2, lines 1-6, 56-59), (5) backup information concerning recording of the recording management information is included in the recording management information recorded on the disk-shaped recording medium (information used for updating in claims 1, 2, 7, and 9); (6) the recording management information temporarily held by the recording management information management means includes the backup information ("updated housed file information tables, control table, and the index table in memory" in claims 2, 7, and 9); (7) the recording management information means updates the backup information to the recording management information temporarily held by the recording management information management means to output to the data recording and reproduction means (claims 2, 7, and 9).

Inokuchi et al. do not teach the digital data being either image or voice.

Tomizawa et al. teach using a CD-R to store images, graphic, or music is very well known (column 1, lines 11-13).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the concept of storing digital images or voice into the information processor that enables using CD-R as a rewritable recording medium

because, according to Tomizawa et al., the CD-R is well known as a means for recording and reproducing images or music data (column 1, lines 11-13).

Therefore, the invention, as a whole, would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, absent unexpected results to the contrary.

Claims 10, 11, 16, and 18 are rejected for the same reason as discussed in claims 1, 2, 7, and 9 above.

**Claims 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inokuchi et al. (US Patent 5,978,812) and Tomizawa et al. (US Patent 5,976,658) as applied to claims 1, 2, 7, 9-11, 16, and 18 above, and further in view of Ginter et al. (US Patent 5,915,019).**

Claim 4 recites the recording management information to include, as backup information, disconnection-during-recording information, which indicates whether or not power disconnection of the disk recording and reproduction control unit is generated while the recording management information is recorded.

See the teachings of Inokuchi et al. and Tomizawa et al. above.

Inokuchi et al. and Tomizawa et al. do not teach the recording management information to include, as backup information, disconnection-during-recording information, which indicates whether or not power disconnection of the disk recording and reproduction control unit is generated while the recording management information is recorded.

Ginter et al. teach the concept of using the power-fail flag to facilitate recovery processing in systems for secure transaction management and electronic rights protection (column 114, lines 50-57).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the concept of using the power-fail flag to facilitate recovery processing in systems for secure transaction management and electronic rights protection taught by Ginter et al. into the information processor which uses a method of information processing that enables a CD-R to be used as a rewritable recording medium to store digital image and music taught by Inokuchi et al. and Tomizawa et al. to include disconnection-during-recording information which indicates whether or not power disconnection of the disk recording and reproduction control unit is generated while the recording management information is recorded, as backup information because, according to Ginter et al., doing such would facilitate recovery processing (column 114, lines 50-57).

Therefore, the invention, as a whole, would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, absent unexpected results to the contrary.

Claim 13 is rejected for the same reason as discussed in claim 4 above.

**Claims 8 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inokuchi et al. (US Patent 5,978,812) and Tomizawa et al. (US Patent 5,976,658) as applied to claims 1, 2, 7, 9-11, 16, and 19 above, and further in view of Agha et al. (US Patent 6,216,226) and Braxton (US Patent 4,141,006).**

Claim 8 recites the recording management information management means selecting the recording management information, which is most newly recorded with no power disconnection generated during recording at startup.

See the teachings of Inokuchi et al. and Tomizawa et al. above.

Inokuchi et al. also teach selecting the most newly recorded control information at startup of the recording (column 2, lines 14-32).

Inokuchi et al. and Tomizawa et al. do not teach the management information generated with no power disconnection during recording.

Agha et al. teach a concept of dynamically switching a boot process in cases where a system failure has occurred within a network environment (column 1, lines 54-56) by performing a diagnostics test, which is free of previous failures.

Braxton teaches a system failure being a loss of power (column 6, lines 10-13).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the concept of using a startup process, which is free of failure taught by Agha et al. such as a power disconnection as suggested by Braxton, into the recording and reproduction device taught by Inokuchi et al. and Tomizawa et al. to maintain system integrity, according to Agha et al. (column 1, lines 29-31).

Therefore, the invention, as a whole, would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, absent unexpected results to the contrary.

Claim 17 is rejected for the same reason as discussed in claim 8 above.

**Claims 1-3, 7, 9-12, 16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dieleman et al. (US Patent 5,341,356) and Inokuchi et al. (US Patent 5,978,812).**

Claims 1, 2, 3, and 9 recite a recording and reproduction disk control unit (or a disk device having a recording and reproduction disk control unit) which controls recording and reproduction of digital data onto/from a disk-shaped recording medium that has a data recordable area where digital data composed of either one of both of image data and voice data are recorded and one, two or more management information areas where recording management information employed for management of the digital data is recorded, comprising: (1) a data recording and reproduction means for recording digital data and recording management information onto the disk-shaped recording medium and reading the digital data and the recording management information from the recording medium; (2) a data holding means for temporarily holding the digital data; (3) an image/voice data management means for monitoring whether or not there is room for recording digital data by said data recording and reproduction means while said data recording and reproduction means takes out the held digital data from said data holding means and records the digital data onto the disk-shaped recording medium; (4) a recording management information management means for temporarily holding recording management information and outputting the recording management information to said data recording and reproduction means to be recorded on the disk-shaped recording medium when said image/voice data management means detects that there is a room for recording of the digital data by said data recording and

reproduction means, wherein: (5) the data recording and reproduction means records recording management information in the two or more management information areas in turn, (6) the recording management information recorded on the disk-shaped recording medium, as backup information, includes recency information which indicates whether the recording management information is most newly recorded.

Claim 7 recites: (7) backup information concerning recording of the recording management information is included in the recording management information recorded on the disk-shaped recording medium (8) the recording management information temporarily held by the recording management information management means includes the backup information; (9) the recording management information means adds the backup information to the recording management information temporarily held by the recording management information management means to output to the data recording and reproduction means.

Dieleman et al. teach a recording and reading device (or a disk device having a recording and reproduction disk control unit), which controls recording and reproduction of digital data onto/from a disk-shaped recording medium (column 3, lines 61-64) that has a data recordable area where digital data composed of either one of both of image data and voice data are recorded (column 10, lines 36-39) and two or more management information areas (each area corresponds to an area to contain a control file, which contains a set of control information) where recording management information (control file) employed for management of the digital data is recorded (column 4, lines 66-68; column 5, line 1), comprising: (1) a data recording and

reproduction means for recording digital data and recording management information onto the disk-shaped recording medium and reading the digital data and the recording management information from the recording medium (Fig.1 and Fig. 4); (2) a data holding means for temporarily holding the digital data ("RAM 227" in Fig. 17; column 13, lines 1-9); wherein: (4) the data recording and reproduction means records recording management information, which is contained in control files, which in turn are contained in information volumes (column 4, lines 57-60) in the two or more management information areas in turn (column 8, lines 38-40); (6) the recording management information recorded on the disk-shaped recording medium includes, as backup information, recency information which indicates whether the recording management information is most newly recorded which is the lead-out signal of the last information volume ("lead-out signal" in column 8, lines 53-61; column 9, lines 39-41, 45-54).

Dieleman et al. do not teach: (3) an image/voice data management means for monitoring whether there is a room for recording digital data by said data recording and reproduction means while said data recording and reproduction means takes out the held digital data from said data holding means and records the digital data onto the disk-shaped recording medium; (4) a recording management information management means for temporarily holding recording management information and outputting the recording management information to said data recording and reproduction means to be recorded on the disk-shaped recording medium when said image/voice data management means detects that there is a room for recording of the digital data by said data recording and reproduction means; (7) backup information concerning recording of

the recording management information is included in the recording management information recorded on the disk-shaped recording medium (8) the recording management information temporarily held by the recording management information management means includes the backup information; (9) the recording management information means adds the backup information to the recording management information temporarily held by the recording management information management means to output to the data recording and reproduction means.

Inokuchi et al. teach (3) an data management means (CPU 6, RAM 7, and CD-R DRIVE 5 in Fig. 1) for monitoring whether or not there is a room for recording digital data (column 19, lines 21-22, 39-45; column 20, lines 50-55, 64-67; column 21, lines 1-2, 6-11, 15-17) by said data recording and reproduction means while said data recording and reproduction means takes out the held digital data from said data holding means and records the digital data onto the disk-shaped recording medium (column 21, lines 4-7); (4) a recording management information management means (CPU 6, RAM 7, and CD-R DRIVE 5 in Fig. 1) for temporarily holding recording management information (column 1, lines 52-58) and outputting the recording management information to said data recording and reproduction means to be recorded on the disk-shaped recording medium when said digital data management means detects that there is a room for recording of the digital data by said data recording and reproduction means (column 7, lines 60-64; column 21, lines 4-7); (7) backup information concerning recording of the recording management information is included in the recording management information recorded on the disk-shaped recording medium (information

Art Unit: 2621

used for updating in claims 1, 2, 7, and 9); (8) the recording management information temporarily held by the recording management information management means includes the backup information ("updated housed file information tables, control table, and the index table in memory" in claims 2, 7, and 9); (9) the recording management information means updates the backup information to the recording management information temporarily held by the recording management information management means to output to the data recording and reproduction means (claims 2, 7, and 9).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate: (2) the means for monitoring free space; (3) means for storing and outputting management information when there is room for the data; (6),(7), (8) the concept of updating the backup information taught by Inokuchi et al., into the recording and reading device taught by Dieleman et al. because, according to Inokuchi et al., it is necessary to monitor the memory so that a required space is assured, at least, to perform freeze operation on write-once CD (CD-R in Inokuchi et al. and CD-WO in Dieleman et al.), otherwise, the recording medium cannot be read back (column 19, lines 9-20).

Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, absent of unexpected results to the contrary.

Claims 10-12, 16, and 18 are rejected for the same reason as discussed in claims 1-3, 7, and 9 above.

**Claims 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dieleman et al. (US Patent 5,341,356) and Inokuchi et al. (US Patent 5,978,812) as applied to claims 1-3, 7, 9-12, 16, and 18 above, and further in view of Ginter et al. (US Patent 5,915,019).**

Claim 4 recites the recording management information to include, as backup information, disconnection-during-recording information, which indicates whether or not power disconnection of the disk recording and reproduction control unit is generated while the recording management information is recorded.

See the teachings of Dieleman et al. and Inokuchi et al. above.

Dieleman et al. and Inokuchi et al. do not teach the recording management information to include, as backup information, disconnection-during-recording information, which indicates whether or not power disconnection of the disk recording and reproduction control unit is generated while the recording management information is recorded.

Ginter et al. teach the concept of using the power-fail flag to facilitate recovery processing in systems for secure transaction management and electronic rights protection (column 114, lines 50-57).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the concept of using the power-fail flag to facilitate recovery processing in systems for secure transaction management and electronic rights protection taught by Ginter et al. into the recording and reading device with free-space-monitoring feature taught by Dieleman et al. and Inokuchi et al. to include

disconnection-during-recording information which indicates whether or not power disconnection of the disk recording and reproduction control unit is generated while the recording management information is recorded, as backup information because, according to Ginter et al., doing such would facilitate recovery processing (column 114, lines 50-57).

Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, absent of unexpected results to the contrary.

Claim 13 is rejected for the same reason as discussed in claim 4 above.

**Claims 1-2, 5-6, 9-11, 14-15, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohmori (US Patent 5,737,290) and Inokuchi et al. (US Patent 5,978,812).**

Claims 1, 2, 5, 6, and 9 recite a recording and reproduction disk control unit (or a disk device having a recording and reproduction disk control unit) which controls recording and reproduction of digital data onto/from a disk-shaped recording medium that has a data recordable area where digital data composed of either one of both of image data and voice data are recorded and one, two or more management information areas where recording management information employed for management of the digital data is recorded, comprising: (1) a data recording and reproduction means for recording digital data and recording management information onto the disk-shaped recording medium and reading the digital data and the recording management information from the recording medium; (2) a data holding means for temporarily holding

the digital data; (3) an image/voice data management means for monitoring whether or not there is room for recording the digital data by said data recording and reproduction means while said data recording and reproduction means takes out the held digital data from said data holding means and records the digital data onto the disk-shaped recording medium; (4) a recording management information management means for temporarily holding recording management information and outputting the recording management information to said data recording and reproduction means to be recorded on the disk-shaped recording medium when said image/voice data management means detects that there is a room for recording of the digital data by said data recording and reproduction means, wherein: (5) the data recording and reproduction means records recording management information in the two or more management information areas in turn, (6) the recording control information includes, as backup information, operational state information which indicates whether or not the recording management information is recorded on the disk-shaped recording medium during recording or digital data (7) backup information concerning recording of the recording management information is included in the recording management information recorded on the disk-shaped recording medium (8) backup information is not included in the recording management information temporarily held by the recording management information management means; and (9) the recording management information means adds the backup information to the recording management information temporarily held by the recording management information management means to output to the data recording and reproduction means.

Ohmori teaches a recording and reproduction device (or a disk device having a recording and reproduction disk control unit) which controls recording and reproduction of digital data onto/from a disk-shaped recording medium (column 6, lines 53-55) that has a data recordable area where digital data composed of either one of both of image data and voice data (column 2, lines 38-41) are recorded and one, two or more management information areas (column 2, lines 38-50) where recording management information employed for management of the digital data is recorded, comprising: (1) a data recording and reproduction means for recording digital data and recording management information onto the disk-shaped recording medium and reading the digital data and the recording management information from the recording medium (Fig. 1, column 3, lines 24-67; column 4, lines 1-10); (2) a data holding means for temporarily holding the digital data (column 8, lines 22-27; "buffer RAM 33" in Fig. 2); wherein: (5) the data recording and reproduction means records recording management information in the two or more management information areas in turn (column 17, lines 6-67; column 18, lines 1-26); (6) the recording control information includes, as backup information, operational state information which indicates the time of volume creation, and time of volume updating (column 18, lines 19-20; column 20, lines 48-50), which is used to indicate whether or not the recording management information is recorded on the disk-shaped recording medium during recording or digital data; (7) backup information concerning recording of the recording management information is included in the recording management information recorded on the disk-shaped recording medium (column 17, lines 6-67; column 18, lines 1-26); (8) backup information is not

Art Unit: 2621

included in the recording management information temporarily held by the recording management information management means, but recorded directly (column 43, lines 52-54); and (9) the recording management information means adds the backup information to the recording management information temporarily held by the recording management information management means to output to the data recording and reproduction means (column 44, lines 10-12).

Ohmori does not explicitly teach: (3) an image/voice data management means for monitoring whether or not there is room for recording the digital data by said data recording and reproduction means while said data recording and reproduction means takes out the held digital data from said data holding means and records the digital data onto the disk-shaped recording medium; and (4) a recording management information management means for temporarily holding recording management information and outputting the recording management information to said data recording and reproduction means to be recorded onto the disk-shaped recording medium when said image/voice data management means detects that there is a room for recording of the digital data by said data recording and reproduction means.

Inokuchi et al. teach: (3) an data management means (CPU 6, RAM 7, and CD-R DRIVE 5 in Fig. 1) for monitoring whether or not there is a room for recording digital data by said data recording and reproduction means (column 19, lines 21-22, 39-45; column 20, lines 50-55, 64-67; column 21, lines 1-2, 6-11, 15-17) while said data recording and reproduction means takes out the held digital data from said data holding means and records the digital data onto the disk-shaped recording medium (column 21,

Art Unit: 2621

lines 4-7); and (4) a recording management information management means (CPU 6, RAM 7, and CD-R DRIVE 5 in Fig. 1) for temporarily holding recording management information (column 1, lines 52-58) and outputting the recording management information to said data recording and reproduction means to be recorded on the disk-shaped recording medium when said digital data management means detects that there is a room for recording of the digital data by said data recording and reproduction means (column 7, lines 60-64; column 21, lines 4-7).

One of ordinary skill in the art at the time the invention was made would have been motivated to incorporate the free-space monitoring means; and the recording management information management means taught by Inokuchi et al. into the recording and reproduction device taught by Ohmori because, according to Inokuchi et al., it is necessary to monitor the free space on optical disks, especially the CD-R, to achieve compatibility with standard CD-ROM (column 19, lines 9-20).

Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, absent of unexpected results to the contrary.

Claims 10-11, 14-15, and 18 are rejected for the same reason as discussed in claims 1-2, 5-6, and 9 above.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2621

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Contact Information***

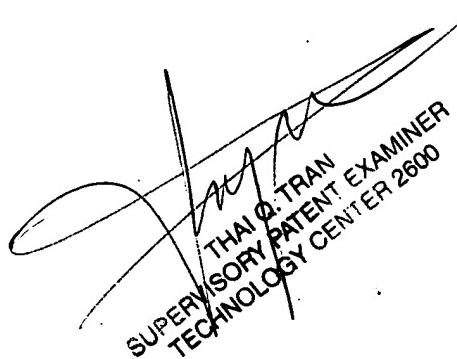
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung Q. Dang whose telephone number is 571-270-1116. The examiner can normally be reached on M-Th:7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thai Tran can be reached on 571-272-7382. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2621

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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